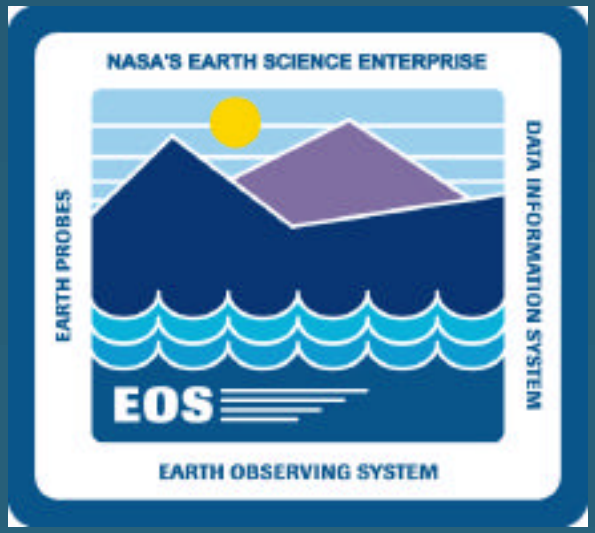
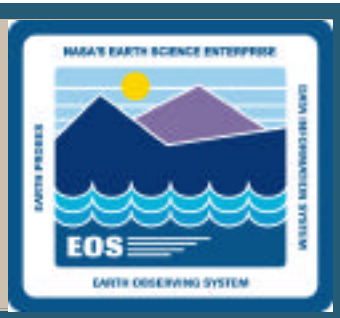


COTS Software/Hardware

Ravi Nirgudkar

Agenda



- Overview
- COTS Software
- COTS Hardware

Overview

- COTS products are upgraded because of following reasons:
  - Vendor support
  - Vendor supplied patches
  - Problem resolution
  - Customer requests
  - Performance
- COTS upgrade activities are described and guided by DID 335, Volume 2; ECS Work Instruction SE-1-001, and the weekly COTS status report.

COTS Software

- **COTS Software products being upgraded during the 6A time frame include the following:**

COTS	Comments	PSR Date
Sybase ASE 11.9.3	Support ends 12/00	Nov 00
Autosys 5.0	Sybase upgrade	Nov 00
ReelRobot SRI 8.1b	Replaces Exabyte driver	Dec 00
Clearcase 3.2.1	Support ends 12/00	Aug 00
XVT DSC 5.0	Support ends 12/00	No PSR

COTS Hardware

- **COTS Hardware products being upgraded during the 6A time frame include the following:**

  GSFC and EDC DAAC

  -Add Gigabit Ethernet to FDDI network to handle the increased throughputs of Terra reprocessing along with normal processing for Aqua

  -Add SGI Origin to the APC functionality (APC) to handle Terra and Aqua operations separately

  -Upgrade the SGI Archiving machines (DPR) from SGI Challenge to Origin configurations

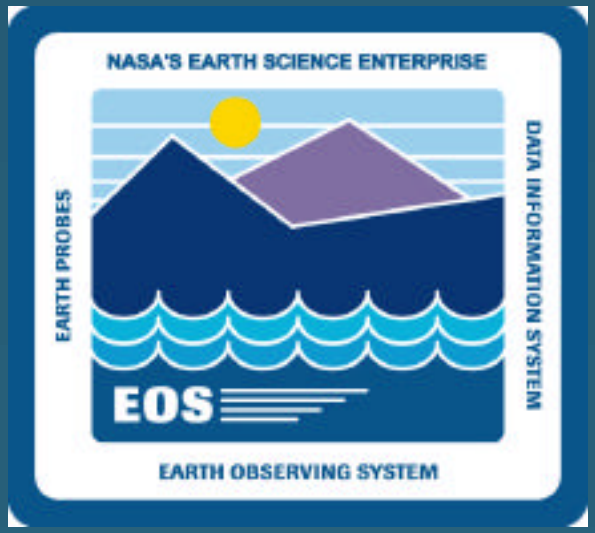
  -Add staging disk to handle the increased Data Ingest/Distribution loads

  GSFC DAAC only

  -Add SGI Origin to the Science Data Server (SPR) to handle the additional Aqua MODIS processing load.

COTS Hardware

Site	Subsystem	Mission	Disks	Server	OTHER
GSFC	APC	Terra	100 GB	SGI ORIGIN, 8CPU	
		Aqua	500 GB	SGI ORIGIN, 8CPU	
				SGI ORIGIN, 8CPU	
				SUN 3500, 4 CPU	
	DRP	Terra	500 GB	SGI ORIGIN, 8CPU	
			500 GB	SGI ORIGIN, 8CPU	
		Aqua	500 GB	SGI ORIGIN, 8CPU	
			500 GB	SGI ORIGIN, 8CPU	SILO
				SGI ORIGIN, 8CPU	
	SPR	Aqua		SGI ORIGIN, 32CPU	
	DIST	Aqua			7 CD-R, 2 DLT LIBRARIES
EDC	APC	Terra	86GB	SGI ORIGIN, 8CPU	
		Aqua	144GB	SGI ORIGIN, 8CPU	
	DRP	Terra	500 GB	SGI ORIGIN, 8CPU	
			500 GB	SGI ORIGIN, 8CPU	
		Aqua	500 GB	SGI ORIGIN, 8CPU	SILO
	DIST	Aqua			3 CD-R, 2 DLT LIBRARIES

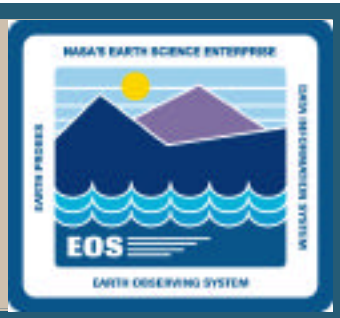


Test Engineering

Bob Kniffin

Raytheon

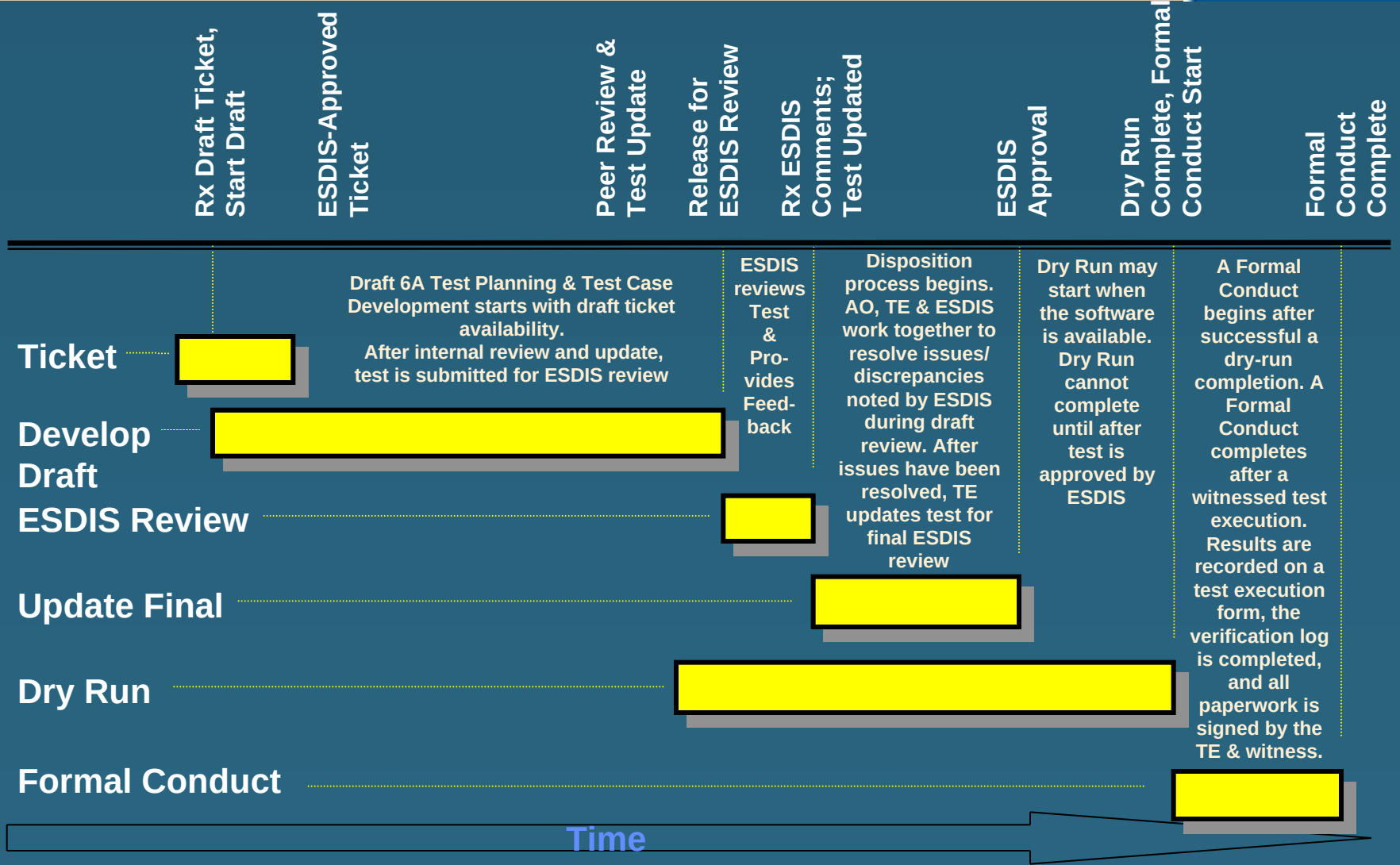
Test Engineering
6A Overview



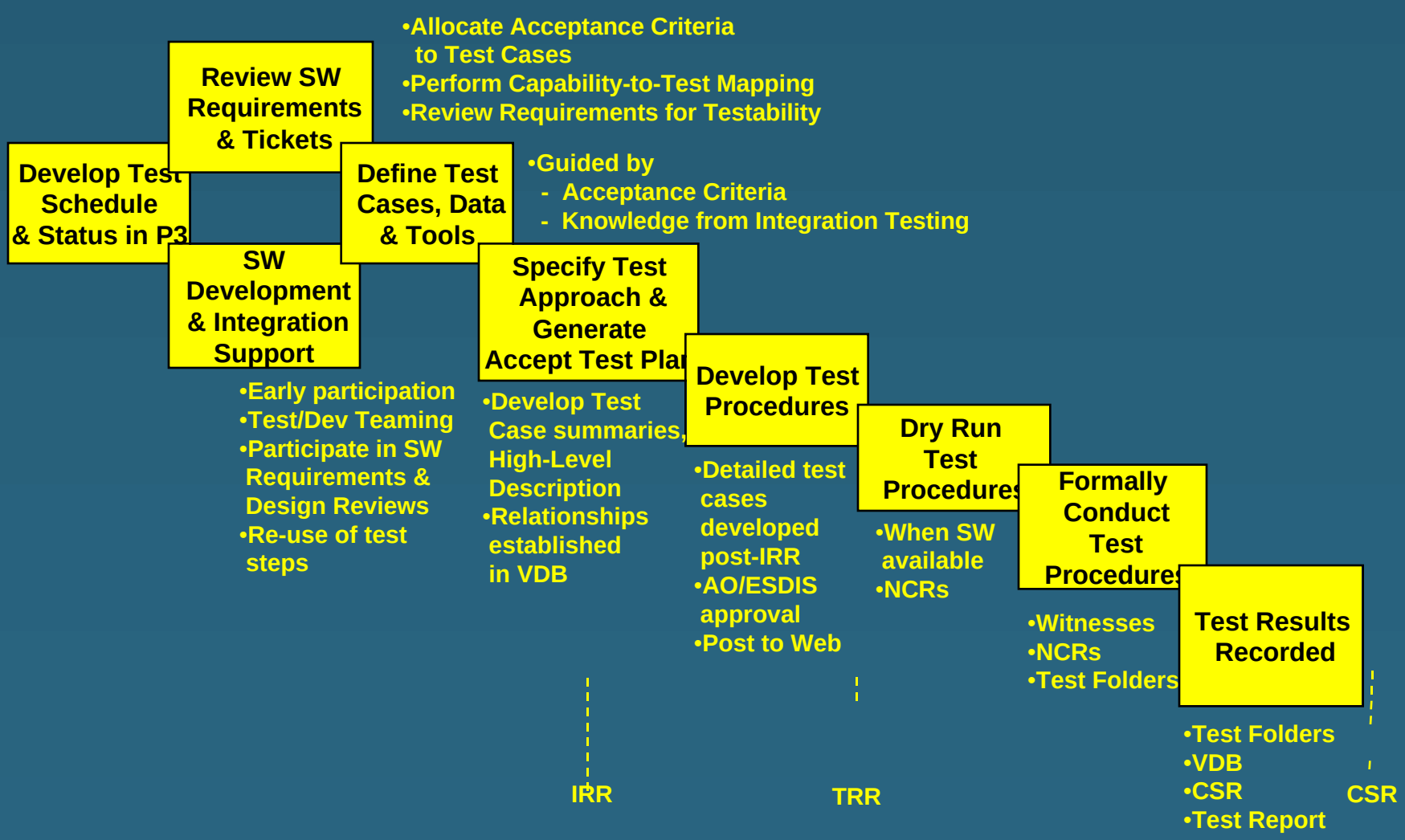
Agenda:

- Test Approach
  - Overview
    - -Test Case Planning & Development
    - -Test Activities
    - -Test Activities Timeline
    - -COTS Testing
    - -Deployment Support
- Tests for 6A
  - Test Case Development
  - Test Case Suite
- Regression Testing
- Current Status for 6A

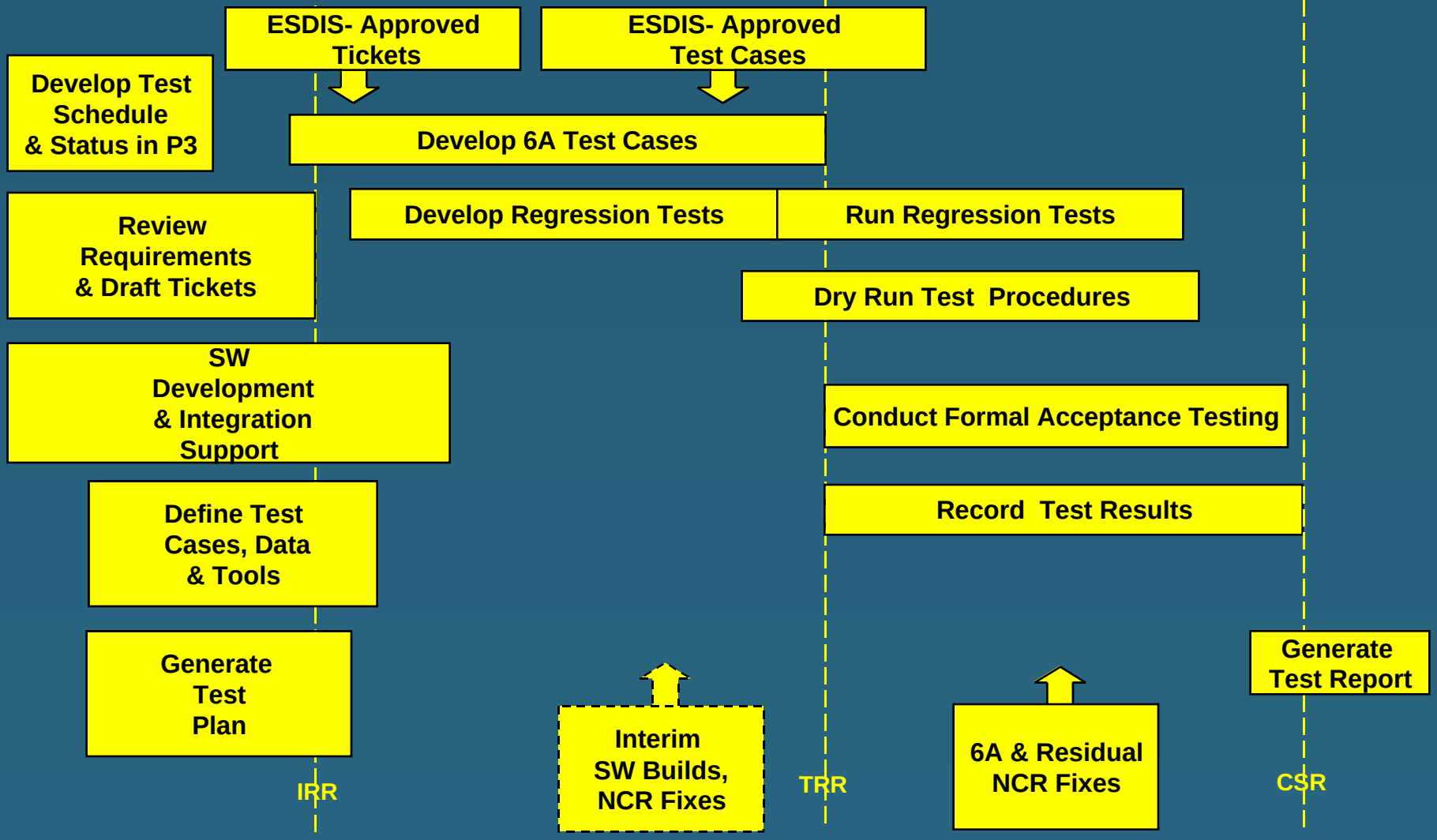
Test Approach
Overview: Test Case Planning & Dev



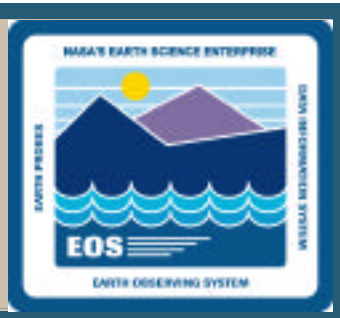
Test Approach
Overview: Test Activities



Test Approach
Overview: Test Activities Timeline



Test Approach
Deployment Support



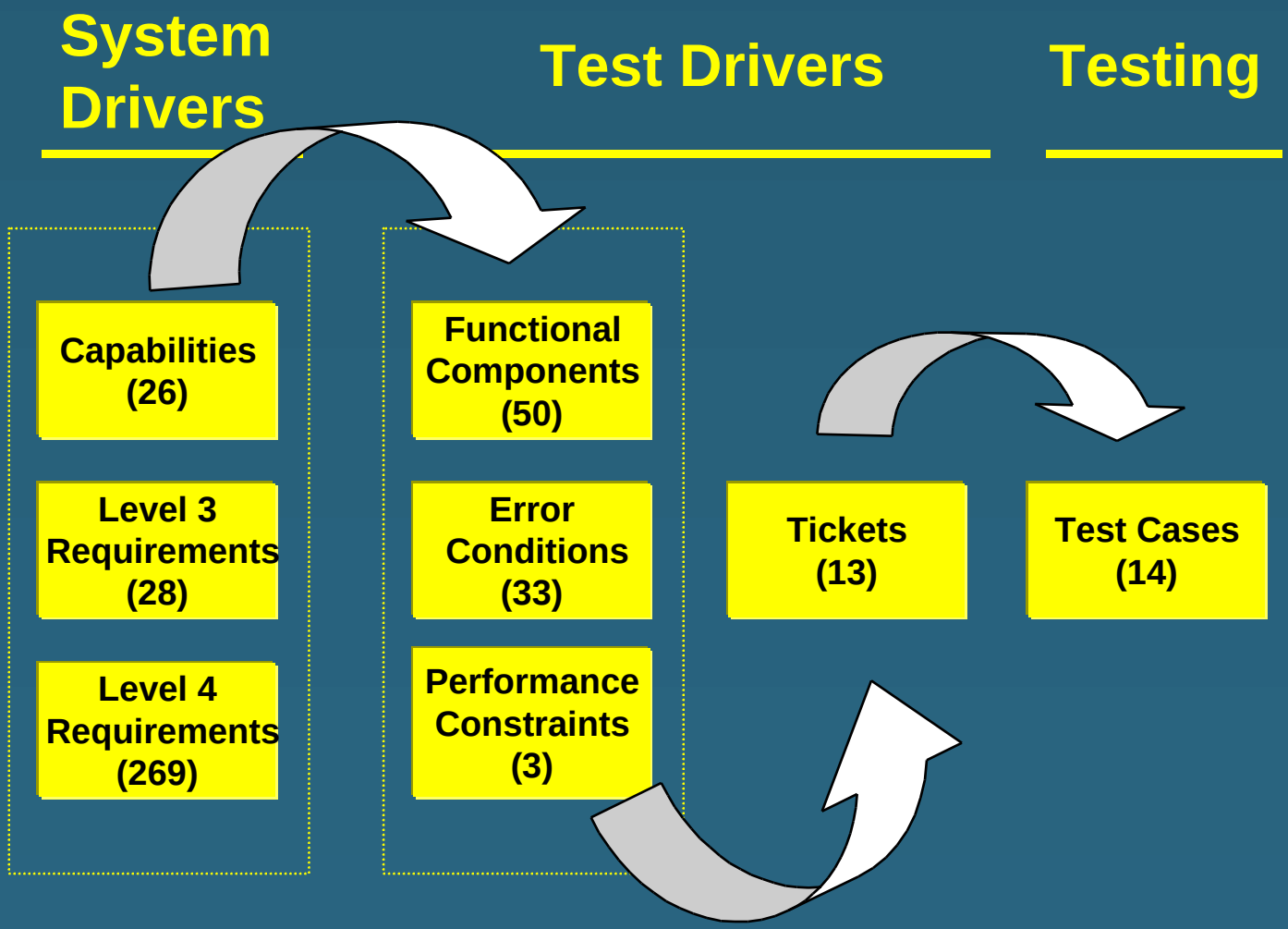
Prepare for Release 6A Deployment

- IRR-Identify DAAC on-site activities
- Develop & Perform Regression Tests
- ICO in VATC
  - Verify Install Script
  - Exercise/Refine CO procs
- Coordinate with DAACs
- CSR - Show results of testing & readiness to deploy
- Support Transition Training & Dry Run
- PSR - Ready site support team

Deploy Release 6A

- Support DAAC ICO
- Support core regression test conduct
- Conduct any Acceptance Tests
- Support 5B to 6A Transition

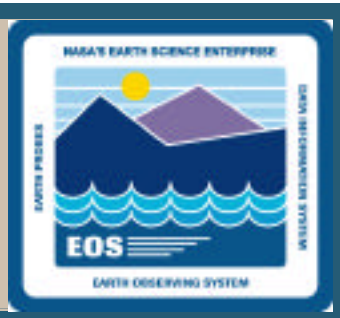
Tests for 6A
Test Generation



Tests for 6A
Test Case Suite

Test Case	Ticket	Level 3 Rqmts	Level 4 Rqmts	Capabilities	Function Components	Error Components	Performance Components	VATC	PVC	GSFC	LaRC	EDC	NSIDC
6A09030 Additional Media Types	RS-6A-01	1	11	2	7	4	0	x					
6A10000 VO Gateway Enhance	EN-6A-02	1	15	1	2	0	0	x					
6A10020 Granule Deletion	EN-6A-04	1	17	2	2	4	1	x	x				
6A08000 Machine-to-Machine Gateway	RM-6A-05	2	99	1	2	0	0	x					
6A10050 FTP Pull Subscriptions	RM-6A-04A	1	5	1	2	0	0	x					
6A09080 Attached DPR	RM-6A-07	1	38	1	5	2	0	x					
6A10070 Ingest 6A Data Type	RS-6A-06	3	11	1	3	7	1	x	x				
6A09040 Distribution Compression	RS-6A-02	1	13	1	4	0	0	x					
6A09050 EDOS Backup	RS-6A-03	3	8	4	4	0	0	x					
6A09000 IGS Tape Ingest	EN-6A-01	2	3	3	2	8	1	x	x				
6A10030 Multi-host Scheduling	RS-6A-04	3	15	2	6	5	0	x	x	x			
6A09020 Reprocessing	RM-6A-01	1	8	2	4	0	0	x					
6A10040 Archive Improvements	RS-6A-05B	7	22	3	6	3	0	x					
6A10080 Ingest dBase Data Type Verification	RS-6A-06	1	4	2	1	0	0	x					
Totals		28	269	26	50	33	3						

Test Engineering
COTS Software Upgrade Testing



Installation & Release Notes provided to Test Engineering Team

RTSC Installs and configures COTS in VATC/PVC

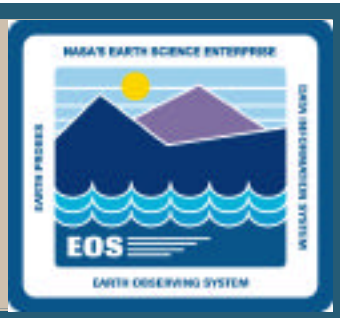
Test Engineering conducts tests & report results

- results part of PSR Package to M&O

COTS products tested during 6A timeframe:

- Sybase ASE 11.9.3 (support for current vers ending 12/00)
- Autosys (required due to Sybase Upgrade)
- ReelRobot SRI 8.1b (replaces Exabyte driver)
- Clearcase 3.2.1 (version consistency across platforms)
- XVT DSC 5.0 (X-Term Virtual Term - vendor support)

Test Engineering
Regression Testing



Suite of tests appropriate for regression testing developed from Checkout Tests, Acceptance Tests, and End-To-End Test

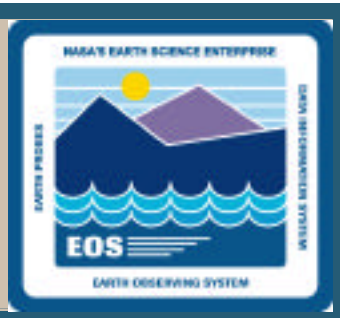
DAAC-Oriented Regression/Stability Tests under development

- **4 Tests**
- **Each is a 4 hour slice applicable to key operations at each DAAC**
- **Uses data appropriate to each DAAC & supplied by each DAAC**
- **Automated using X-Runner Scripts**

Regression Testing performed

- **after Release ICO for SW in VATC & PVC**

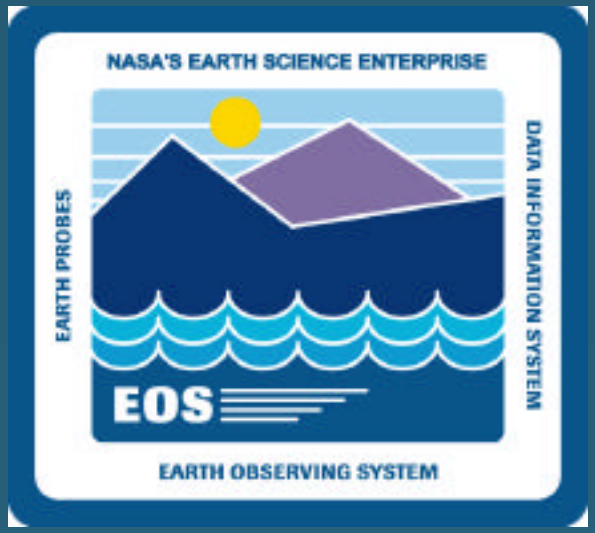
Test Engineering
Current Status For 6A



Participating in 6A Software Integration & Test Support

Test Planning:

- Established Overall Plan for 6A Test
- Planning Regression Tests
- Updating Test Engineering Processes
  - dovetail with System Engineering and Development
- Reviewed Draft Tickets
- Identified Test Data and Test Tools
- Developed Test Summaries
- Developing Draft Test Cases
  - using ESDIS-Approved Tickets where Available
- Generated the Draft Overall Acceptance Test Plan (DID 409)

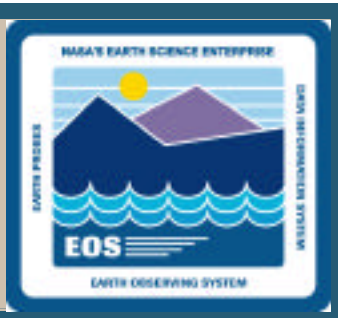


Performance Verification

Skip Linehan

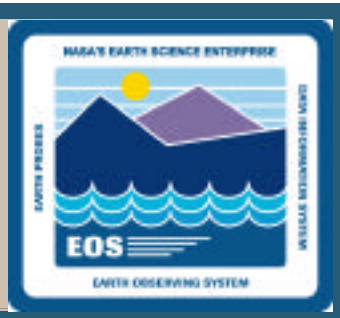
Raytheon

Performance Verification AGENDA



- PVC overview
- 6A Performance Testing Requirements
  - Workload Spec
- 6A Performance Testing Plans
  - Test Flow Diagram
  - scenario activities checklist

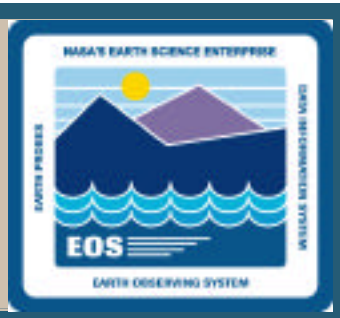
Performance Verification
The PVC



The Performance Verification Center is:

- **A DAAC-like environment at ECS in Landover**
- **used for testing ECS releases under operational workloads**

Performance Verification
PVC SCOPE



Test overall performance and stability of ECS releases

- **Pre-delivery testing on DAAC equiv configuration**
  - **end-to-end integrated functionality**
  - **tuning/performance per requirements**
  - **stress testing for limits/sensitivities**
  - **system level cots interactions**
- **Post-delivery problem diagnosis**
  - **replicate DAAC configuration and loads**

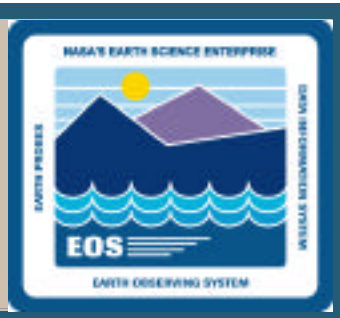
NOT used for:

- **testing low rate performance**
- **testing ancillary operations**

Performance Verification
THE PVC FACILITY

- Complete DAAC suite of ECS hardware
  - 24 SUNs
  - 13 SGIs
    (6 Challenge/ 5 Origin / 2 workstation)
  - 2 STK silos
  - FDDI, e-net, HiPPI
  - EBNET router
- PVC lab for ops terminals
  - 5 SUNs, 30 X-terminals, 6 PCs
  - enough for three modes

Performance Verification
6A Performance Verification Requirements

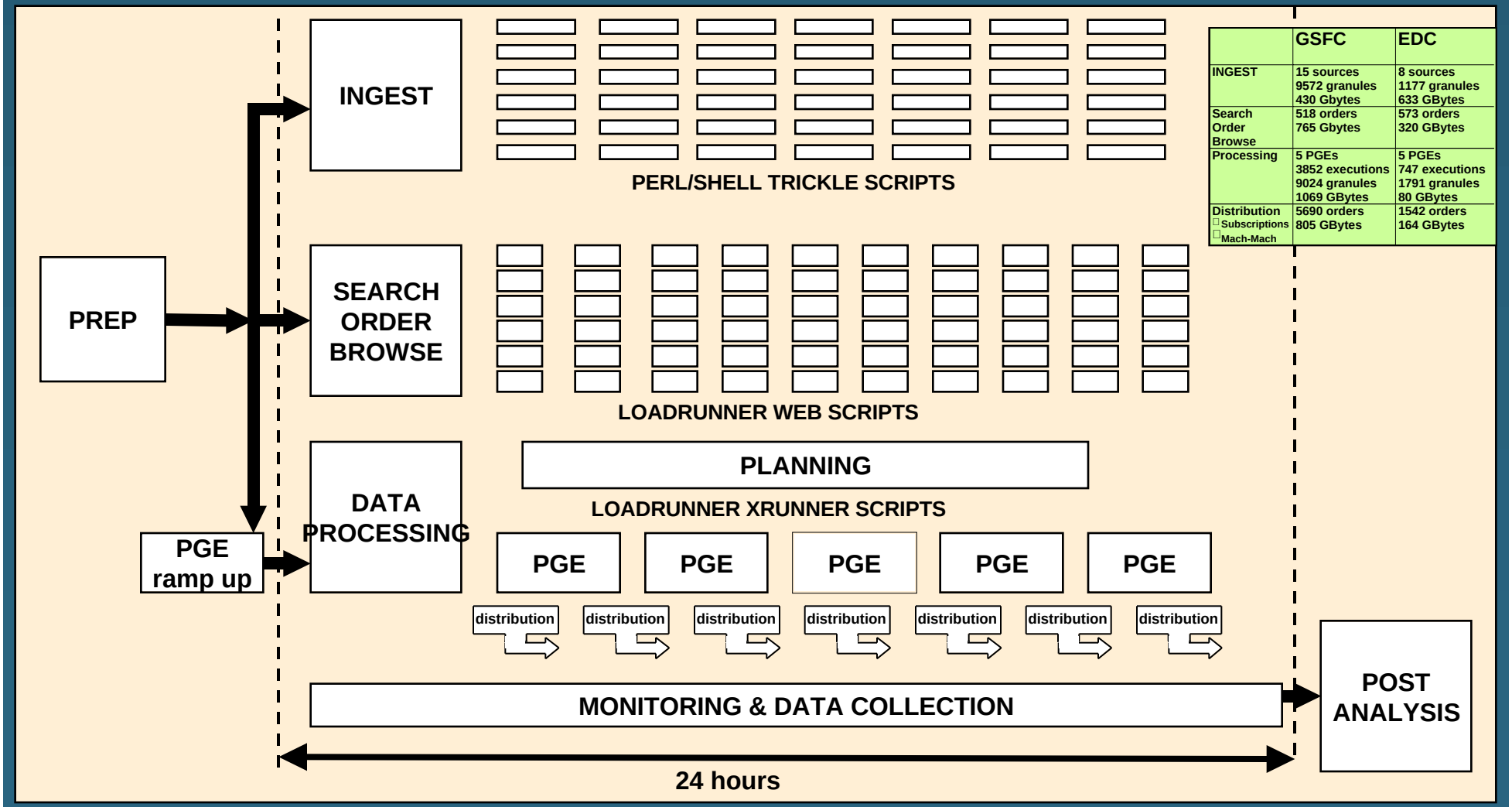


6A Workload Specification (App A in the 6A SSRP)

Two scenarios selected: highest throughput DAACs

- **2.5M granule inventory, 10 TB data in archive**
- **GSFC scenario**
  - **adds Aqua MODIS, AIRS, AMSU, HSB**
  - **adds Terra reprocessing**
- **EDC scenario**
  - **higher MODIS ingest and distribution**

Performance Verification
TEST FLOW DIAGRAM

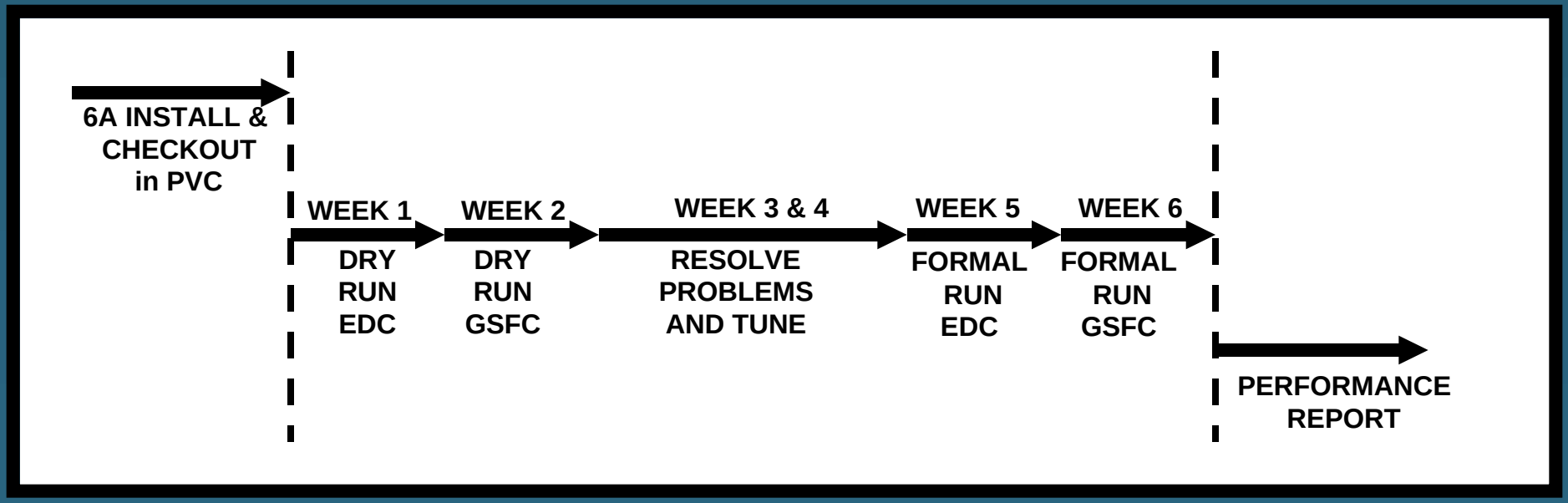


	GSFC	EDC
INGEST	15 sources 9572 granules 430 Gbytes	8 sources 1177 granules 633 GBytes
Search Order Browse	518 orders 765 Gbytes	573 orders 320 GBytes
Processing	5 PGEs 3852 executions 9024 granules 1069 GBytes	5 PGEs 747 executions 1791 granules 80 GBytes
Distribution Subscriptions Mach-Mach	5690 orders 805 GBytes	1542 orders 164 GBytes

Performance Verification PLAN

6A Performance Tests

- 6 week timeframe
- 2 scenarios (EDC & GSFC)



PVC

SCENARIO ACTIVITIES

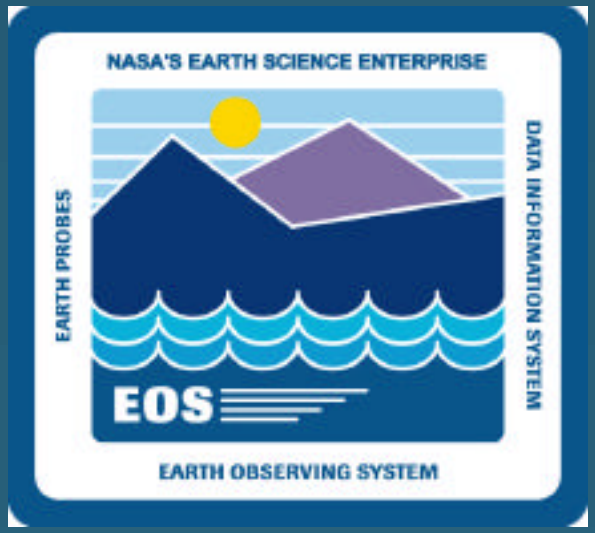
PERFORMANCE TEST FUNCTION / ACTIVITY	GSFC	EDC
Initial State		
User Registrations	X	X
ESDTs installed	X	X
vol groups match DAACs	X	X
SDS 2,500,000 granules & 10 TB	X	X
30K granules L7		X
SDS browse subset loaded	X	X
subscriptions entered	X	X
SDS archive populated 8hrs MODIS PGE01, PGE02, PGE03	X	
SDS archive populated 200 granules of ASTER PGE02,3,4,5,6		X
SDS archive populated 100 L70RWRS		X
ftp pull populated 1000 files, 250 dirs	X	X
create production plans	X	
MODIS running 8-12 hours	X	
INGEST		
MODIS L0 from edos	X	
Terra ancillary from edos	X	
Aqua GBAD from edos	X	
TerraATTFfromFDD	X	
Aqua Predicted Orbit Granule	X	
MODIS L0 expedited from edos (Terra & Aqua)	X	
ASTER L0 from edos	X	
ancillary larry	X	X
DAO from DAS	X	
MODIS higher products from MODAPS	X	X
MODIS higher browse from MODAPS	X	
MODIS higher QA from MODAPS	X	
MODIS higher production history from MODAPS	X	
AIRS, AMSU & HSB L0 from edos	X	
Expedited AIRS, AMSU & HSB l0 from edos	X	
ASTER L1B from D3 tape		X
ASTER L1A from D3 tape		X
ASTER L0 expedited from GDAAC		X
L70R F1 & F2 from L7 contact		X
IGS Metadata and Browse		X
IGS Metadata from SMC		X

PVC

PRODUCTION		
DPREP processing (Terra & Aqua)	X	
MODIS L1A processing (Terra & Aqua)	X	
MODIS L1A reprocessing (Terra)	X	
MODIS L1B processing (Terra & Aqua)	X	
MODIS L1B reprocessing (Terra)	X	
MODIS cloud mask processing (Terra & Aqua)	X	
MODIS cloud mask reprocessing (Aqua)	X	
AIRS/AMSU/HSB higher level processing	X	
ASTER DST from ASTER L1B		X
ASTER ACVS on demand		X
ASTER ACT on demand		X
ASTER ETS on demand		X
ASTER BTS on demand		X
PLANNING		
enter and plan production for 24 hrs Modis L1 (Terra & Aqua)	X	
enter and plan production for 24 hrs Modis L1 reprocessing(Terra)	X	
enter and plan ASTER DST for 24 hrs		X
enter and plan ASTER on-demand for 24 hrs		X
DISTRIBUTION		
subscription ftp push- MODAPS MODxx	X	
Mach/Mach ftp push- MODAPS MODxx	X	
subscription ftp push- EDC ASTxx	X	
subscription ftp push- GDS ASTxx	X	
xrun EDG 8mm MODxx	X	
xrun EDG DLT MODxx	X	
xrun EDG CD-ROM MODxx	X	
xrun EDG 8mm AIRS	X	
xrun subscription ftp push MODxx	X	X
xrun EDG ftp pull MODxx	X	
xrun EDG ftp pull AIRS	X	
xrun EDG 8mm L70RWRS		X
xrun EDG DLT ASTL1A		X
xrun EDG 8mm MODIS		X
xrun subscription ftp push ASTL1B		X
xrun ODFRM ftp pull ASTxx		X
xrun EDG ftp pull ASTL1B		X
xrun EDG ftp pull L70RWRS		X

PVC

DATA ACCESS		
search requests from EDG against 2.5M inventory, 4 users	X	X
integrated browse requests from EDG against 2.5M inventory, 4 users	X	X
search requests from EDG against L7 inventory		X
SYSTEM BACKUP		
incremental Sybase backup	X	X
incremental file system backup	X	X
POST TEST REPORT (1 day)		
actual vs planned work	X	X
list of hw & sw failures	X	X
NCRs for new defects found during tests	X	X
POST TEST REPORT (2 weeks)		
resource usage analysis	X	X
response time analysis	X	X
memory growth analysis	X	X
recommendations for adjustments	X	X

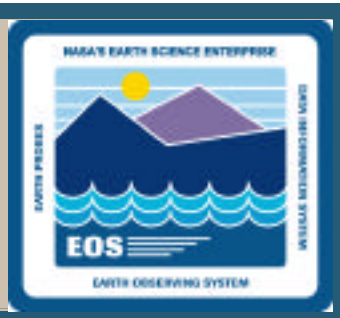


Release Transition

Bill Johnson

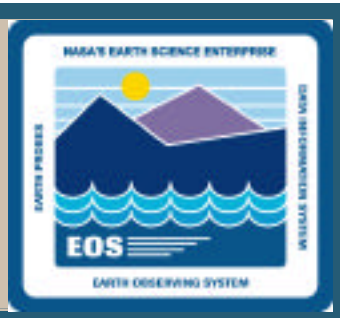
Raytheon

Agenda



- Release Installation Strategy
- Release Transition Strategy
- Transition Process

Release Installation Strategy



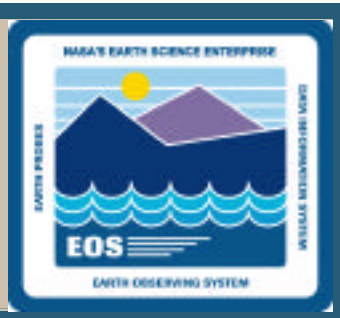
- All DAACs will be operational
  - perform *transition* from release 5B/55 version to 6A

- Predecessor activities include :
  - Successful H/W installation from Challenges to Origins
  - Successful upgrade of IRIX 6.2 to IRIX 6.5 and all other required S/W COTS
  - Site Installation and Checkout (ICO) of 6A Shared Mode

Release Transition Strategy

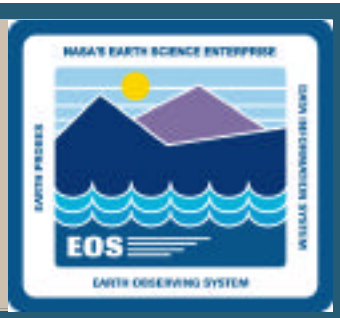
- Initial Transition of 6A is similar to 5B
  - All sites involved: EDC, GSFC, LaRC, NSIDC
  - In house training for DAAC personnel conducted at Landover
  - Parallel transitions at 2 DAACs
  - Develop Two (2) transition teams to support parallel transition
  - Integrated Team - DAACs, Development, System Engineering and Test

Release Transition Strategy



- **Important differences for 6A Transition**
  - **Larger operational databases**
  - **Cross-DAAC dependencies**
    - **-- Production**
    - **-- Ancillary Data Backup**
  - **MSS (Database Replication)**
    - **-- User Profile Information**
    - **-- Order Tracking**

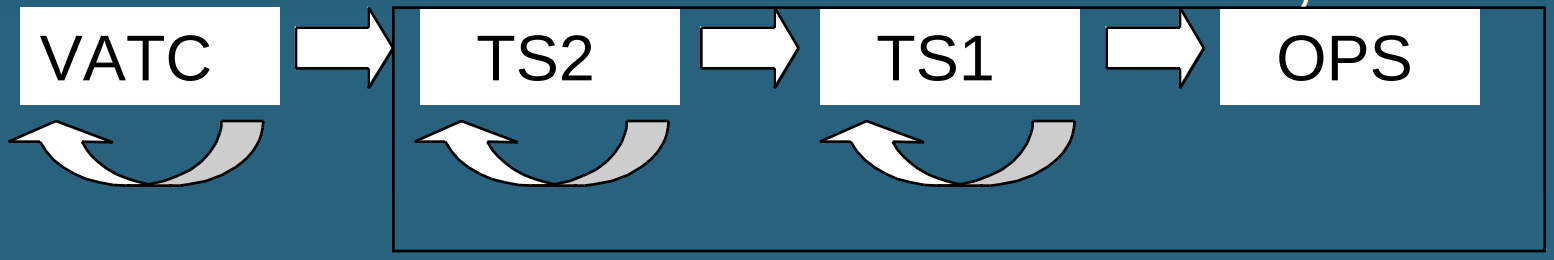
Release Transition Strategy



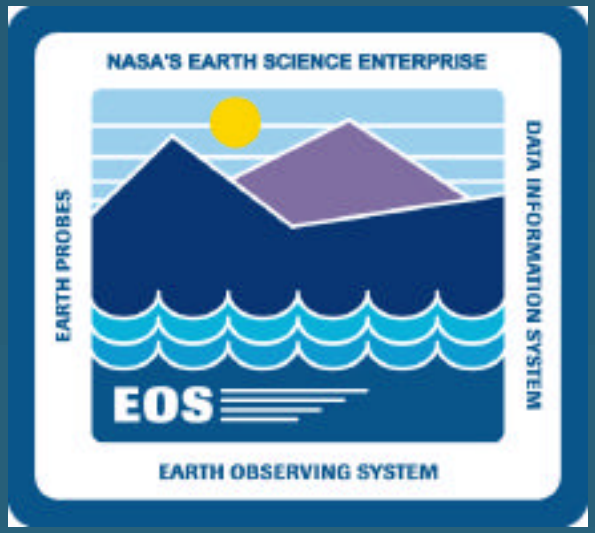
- **Detailed approach documented in 6A Transition Plan**
  - **First Draft : April 28, 2000**
  - **-- Second Draft : May 31, 2000**
  - **-- Final : June 30, 2000**

Transition Process

- **Phased approach used to validate procedures and train team**
  - **Rehearsals /Training in the VATC to validate transition procedures**
  - **DAAC Transition will occur in TS2 & TS1 modes, than OPS**



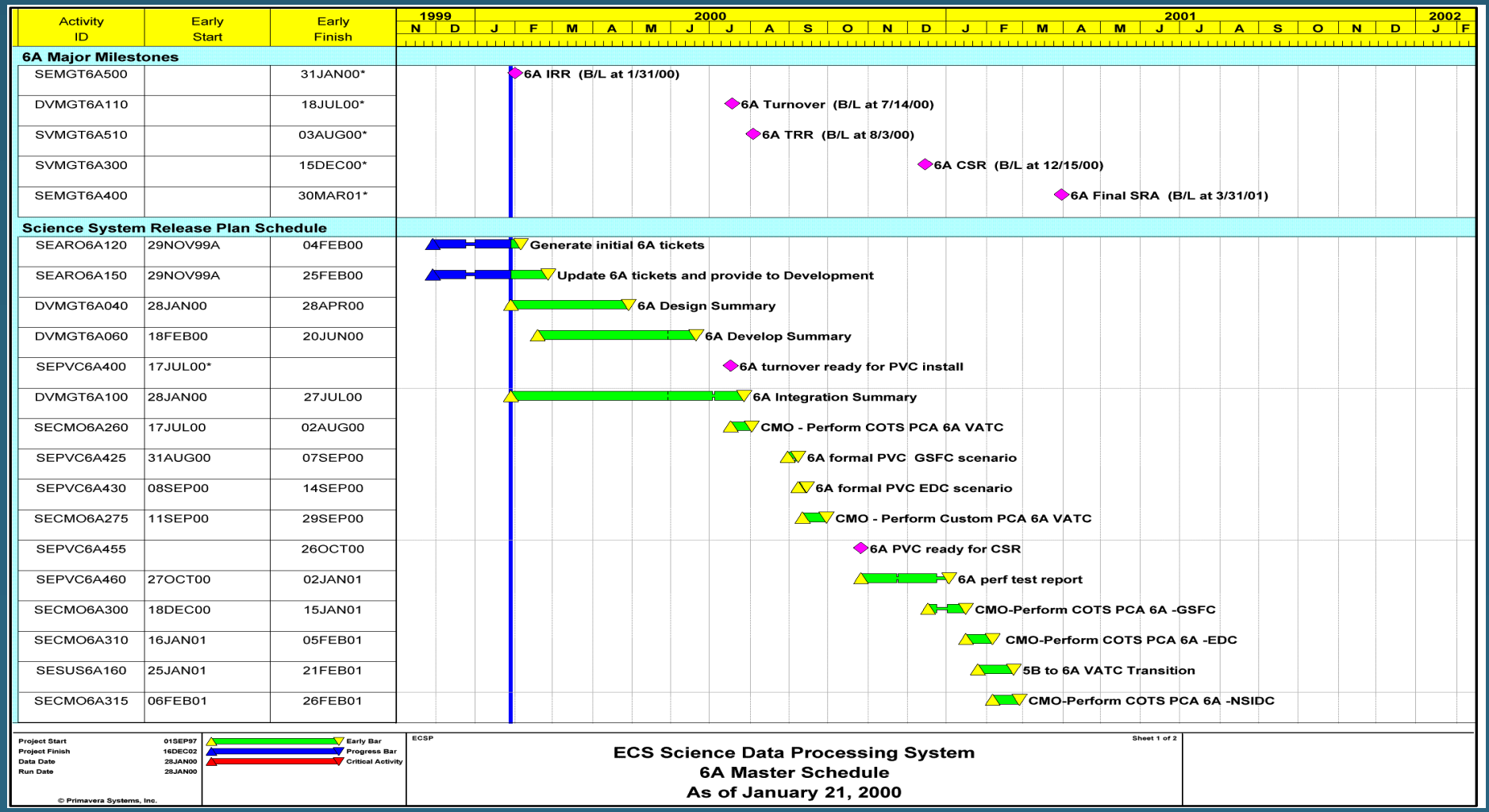
DAAC



Wrap-up/Summary

Mark McBride

6A Schedule


1999
2000
2001
2002
N D J F M A M J J A S O N D J F M A M J J A S O N D J F
6A Major Milestones
SEMGT6A500 31JAN00*
6A IRR (B/L at 1/31/00)
DVMGT6A110 18JUL00*
6A Turnover (B/L at 7/14/00)
SVMGT6A510 03AUG00*
6A TRR (B/L at 8/3/00)
SVMGT6A300 15DEC00*
6A CSR (B/L at 12/15/00)
SEMGT6A400 30MAR01*
6A Final SRA (B/L at 3/31/01)
Science System Release Plan Schedule
SEARO6A120 29NOV99A 04FEB00
Generate initial 6A tickets
SEARO6A150 29NOV99A 25FEB00
Update 6A tickets and provide to Development
DVMGT6A040 28JAN00 28APR00
6A Design Summary
DVMGT6A060 18FEB00 20JUN00
6A Develop Summary
SEPVC6A400 17JUL00*
6A turnover ready for PVC install
DVMGT6A100 28JAN00 27JUL00
6A Integration Summary
SECMO6A260 17JUL00 02AUG00
CMO - Perform COTS PCA 6A VATC
SEPVC6A425 31AUG00 07SEP00
6A formal PVC GSFC scenario
SEPVC6A430 08SEP00 14SEP00
6A formal PVC EDC scenario
SECMO6A275 11SEP00 29SEP00
CMO - Perform Custom PCA 6A VATC
SEPVC6A455 26OCT00
6A PVC ready for CSR
SEPVC6A460 27OCT00 02JAN01
6A perf test report
SECMO6A300 18DEC00 15JAN01
CMO-Perform COTS PCA 6A -GSFC
SECMO6A310 16JAN01 05FEB01
CMO-Perform COTS PCA 6A -EDC
SESUS6A160 25JAN01 21FEB01
5B to 6A VATC Transition
SECMO6A315 06FEB01 26FEB01
CMO-Perform COTS PCA 6A -NSIDC
Project Start 01SEP97
Project Finish 16DEC02
Data Date 28JAN00
Run Date 28JAN00
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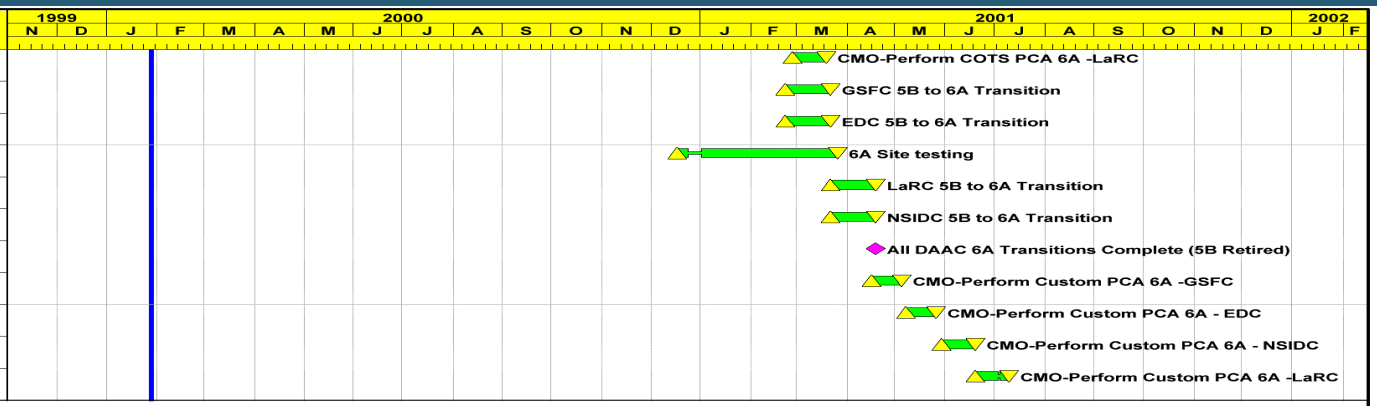
Early Bar
Progress Bar
Critical Activity
ECSP
Sheet 1 of 2
ECS Science Data Processing System
6A Master Schedule
As of January 21, 2000

6A Schedule (Cont.)

Activity ID	Early Start	Early Finish
SECMO6A320	27FEB01	19MAR01
SESUS6A170	22FEB01	21MAR01
SESUS6A180	22FEB01	21MAR01
SVMGT6A240	18DEC00	26MAR01
SESUS6A190	22MAR01	18APR01
SESUS6A200	22MAR01	18APR01
SESUS6A210		18APR01
SECMO6A325	16APR01	04MAY01
SECMO6A330	07MAY01	25MAY01
SECMO6A335	29MAY01	18JUN01
SECMO6A340	19JUN01	10JUL01



Sheet 2 of 2

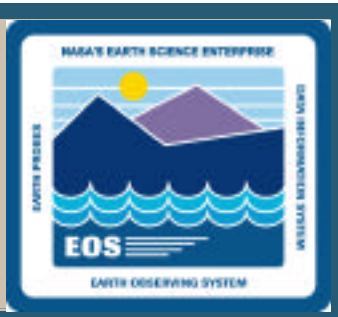
GFE/GFI Identified for 6A

ITEM	DATE REQUIRED	COMMENT/RISK
SAGE III MOC Update	Past Due	ECS directed to ROM with assumption that the time format change is for 6A. CCR currently deferred.
ICESAT GLAS Metadata	02/01/2000	Currently 50% available.
ICESAT GLAS Data	03/01/2000	Not available. Will proceed at risk.

GFE/GFI Identified for 6A

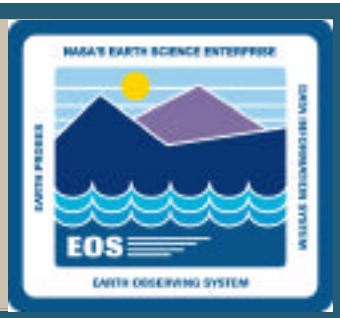
ITEM	DATE REQUIRED	COMMENT/RISK
SIPS ICD: MODAPS (PM-1)	03/10/2000	Updates ICD required to avoid slip to 6B.
MODIS (PM-1) Metadata	03/10/2000	MODIS ESDTs not delivered with 5B.

Risk Areas & Mitigation Strategy

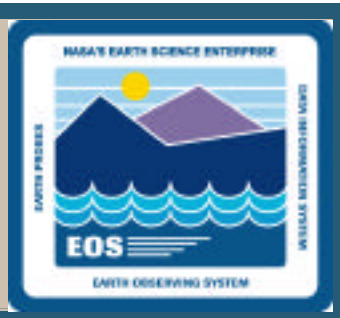


Risk Item	Impact	Mitigation Strategy
OPS Transition (Custom, COTS, Hardware)	Excessive Down Time	Detailed planning and practice; DAAC coordination; dedicated resources. Transition IPT.
PVC Testing Success	Inability to meet 6A workload spec.; ability to meet operational support requirements.	Detailed procedures; Testing tailored for individual DAACs. Plans to incorporate fixes.
GFE/GFI Items	Potential schedule or cost impacts.	Individual impacts documented in weekly reports.

Review of Today's Action Items



Concluding Remarks



- Release Management through Lifecycle Process Improvement
- Requirements Completed (L3/L4)
  - Issues identified and evaluated
  - Design underway
- Tickets available and provided to Test/Development
- System Acceptance Test Plan available
  - Test Cases Identified
  - Allocated to VATC, PVC, and DAACs